

CLAIMS:

1. An arc discharge metal halide lamp for use in selected lighting fixtures, said lamp comprising:
 - a discharge chamber having visible light permeable walls of a selected shape bounding a discharge region through which walls a pair of electrode assemblies are supported with interior ends thereof positioned in said discharge region spaced apart from one another, and with said electrode assemblies each also extending through a corresponding capillary tube affixed to said walls to have exterior ends thereof positioned outside said arc discharge chamber; and
 - at least one of said electrode assemblies comprising an electrode discharge structure located at said interior end of that said electrode assembly with said electrode discharge structure having a discharge region shaft extending into said capillary tube corresponding thereto, and further comprising a helical coil positioned in part about said discharge region shaft in said corresponding capillary tube and extending outwardly in said corresponding capillary tube to be in direct contact with an interconnection shaft extending outside of said corresponding capillary tube to provide said exterior end of that said electrode assembly.
2. The lamp of claim 1 further comprising that remaining said electrode assembly having an electrode discharge structure located at said interior end of that remaining said electrode assembly with said electrode discharge structure having a discharge region shaft extending into said capillary tube corresponding thereto, and further comprising a helical coil positioned in part about said discharge region

shaft in said corresponding capillary tube and extending outwardly in said corresponding capillary tube to be in direct contact with an interconnection shaft extending outside of said corresponding capillary tube to provide said exterior end of that remaining said electrode assembly.

3. The lamp of claim 1 wherein said helical coil is also positioned in part about said interconnection shaft.

4. The lamp of claim 1 wherein said helical coil is formed as an extended end coil so that an end portion thereof following a geometric curve other than a helix serves as said interconnection shaft.

5. The lamp of claim 1 further comprising a sealing frit positioned between at least a portion of said interconnection shaft and at least a portion of said corresponding capillary tube.

6. The lamp of claim 1 further comprising a spatial volume occupying structure positioned adjacent to said interconnection shaft.

7. The lamp of claim 1 wherein said helical coil is formed of molybdenum.

8. The lamp of claim 3 further comprising a sealing frit positioned between at least a portion of said interconnection shaft and at least a portion of said corresponding capillary tube.

9. The lamp of claim 3 further comprising a spatial volume occupying structure positioned within said helical coil between said interconnection shaft and said electrode shaft.

10. The lamp of claim 4 further comprising a sealing frit positioned between at least a portion of said interconnection shaft and at least a portion of said corresponding capillary tube.

11. The lamp of claim 4 further comprising a spatial volume occupying structure formed as a sleeve positioned about said interconnection shaft to be between said interconnection shaft and said corresponding capillary tube.

12. The lamp of claim 7 wherein said helical coil is formed from molybdenum wire having a diameter between 0.05 mm and 1.0 mm.

13. The lamp of claim 8 wherein said interconnection shaft is substantially positioned outside of said corresponding capillary tube with said helical coil also extending in part outside of said corresponding capillary tube to be about said interconnection shaft, and wherein said sealing frit is provided at least in part outside of, but against, said corresponding capillary tube and about both said interconnection shaft and said helical coil there.

14. The lamp of claim 9 further comprising a sealing frit positioned between at least a portion of said interconnection shaft and at least a portion of said corresponding capillary tube and about at least a portion of said spatial volume occupying structure.

15. The lamp of claim 11 further comprising a sealing frit positioned between at least a portion of said interconnection shaft and at least a portion of said corresponding capillary tube and about at least a portion of said spatial volume occupying structure.

16. The lamp of claim 12 wherein said helical coil is formed from molybdenum wire having a diameter between 0.05 mm and 0.4 mm.

17. The lamp of claim 12 wherein said helical coil follows a path of a variable pitch helix with a portion thereof interior to ends thereof having a pitch greater than that occurring elsewhere therein that is in a range of 1.1 to 3 times said diameter of said molybdenum wire.